

DBMS Assignment

**Submitted BY : Subrat Kumar Nanda

In [67]:

```
import mysql.connector
import pandas as pd
```

In [95]:

```
import mysql.connector as mysql
myconn = mysql.connect(host='127.0.0.1', database='MY_BOOKS_SN', user='root', password='
```

In [16]:

```
# Test my Connection
myconn
```

Out[16]:

```
<mysql.connector.connection_cext.CMySQLConnection at 0x19796b15c10>
```

**Get all Tables Name

In [19]:

```
tables = pd.read_sql_query('SHOW TABLES', myconn)
tables
```

Out[19]:

Tables_in_my_books_sn

0	author
1	book
2	book_author
3	book_language
4	cust_order
5	customer
6	customer_order_line
7	customer_paymet_details
8	distributor_order
9	distributor_order_line
10	distributor_paymet_details
11	publisher
12	shipper
13	status
14	store
15	warehouse

In [47]: `tables[0:5]`

Out[47]: **Tables_in_my_books_sn**

0	author
1	book
2	book_author
3	book_language
4	cust_order

**Displaying Schema of all the Tables

In [45]:

```
for i in range(len(tables)):
    print(tables.loc[i, "Tables_in_my_books_sn"])
    print('_'*100)
    output = pd.read_sql_query('desc {}'.format(tables.loc[i, "Tables_in_my_books_sn"]))
    print(output, '\n')
```

author

	Field	Type	Null	Key	Default	Extra
0	author_id	b'int'	NO	PRI	None	auto_increment
1	author_name	b'varchar(400)'	NO		None	

book

	Field	Type	Null	Key	Default	Extra
0	book_id	b'int'	NO	PRI	None	
1	title	b'varchar(400)'	YES		None	
2	isbn	b'varchar(13)'	NO	UNI	None	
3	language_id	b'int'	YES	MUL	None	
4	num_pages	b'int'	YES		None	
5	unit_price	b'decimal(5,2)'	YES		None	
6	publication_date	b'date'	YES		b'(curdate() - 10)'	
7	publication_City	b'varchar(200)'	YES		None	
8	publisher_id	b'int'	YES	MUL	None	

Extra
0 auto_increment

1

2

3

4

5

6 DEFAULT_GENERATED

7

8

book_author

Field	Type	Null	Key	Default	Extra
-------	------	------	-----	---------	-------

0	book_id	b'int'	NO	PRI	None
1	author_id	b'int'	NO	PRI	None

book_language

	Field	Type	Null	Key	Default	Extra
0	language_id	b'int'	NO	PRI	None	auto_increment
1	language_code	b'varchar(8)'	YES		None	
2	language_name	b'varchar(50)'	YES		None	

cust_order

	Field	Type	Null	Key	Default	Extra
0	order_id	b'int'	NO	PRI	None	auto_increment
1	order_date	b'datetime'	YES		b'curdate()'	DEFAULT_GENERATED
2	customer_id	b'int'	YES	MUL	None	
3	store_id	b'int'	YES	MUL	None	
4	shipper_Id	b'int'	YES	MUL	None	
5	espected_delivery_date	b'datetime'	YES		b'(`order_date` + interval 5 day)'	DEFAULT_GENERATED
6	status_id	b'int'	YES	MUL	b'1'	DEFAULT_GENERATED

customer

	Field	Type	Null	Key	Default	Extra
0	customer_id	b'int'	NO	PRI	None	auto_increment
1	first_name	b'varchar(200)'	NO		None	
2	last_name	b'varchar(200)'	NO		None	
3	email	b'varchar(350)'	YES	UNI	None	
4	phone_nubmer	b'varchar(12)'	NO	UNI	None	
5	Address1	b'varchar(200)'	NO		None	
6	Address2	b'varchar(200)'	YES		None	
7	Address3	b'varchar(200)'	YES		None	
8	city	b'varchar(100)'	NO		None	
9	state	b'varchar(100)'	NO		None	
10	country	b'varchar(100)'	NO		None	
11	postalcode	b'int'	NO		None	

customer_order_line

	Field	Type	Null	Key	Default	Extra
0	cust_line_id	b'int'	NO	PRI	None	auto_increment
1	order_id	b'int'	YES	MUL	None	
2	book_id	b'int'	YES	MUL	None	
3	quantity	b'int'	YES		b'1'	
4	price	b'double'	YES		None	

customer_payment_details

	Field	Type	Null	Key	Default	Extra
0	payment_id	b'int'	NO	PRI	None	auto_increment
1	payment_type	b'varchar(200)'	YES		None	
2	price	b'double'	YES		None	
3	payment_status	b'varchar(200)'	YES		None	
4	order_id	b'int'	YES	MUL	None	
5	status_Id	b'int'	YES	MUL	None	

distributor_order

	Field	Type	Null	Key	\
0	order_id	b'int'	NO	PRI	
1	order_date	b'datetime'	YES		
2	store_id	b'int'	YES	MUL	
3	shipper_Id	b'int'	YES	MUL	
4	espected_delivery_date	b'datetime'	YES		
5	status_id	b'int'	YES	MUL	

	Default	Extra
0	None	auto_increment
1	b'curdate()'	DEFAULT_GENERATED
2	None	
3	None	
4	b'(`order_date` + interval 2 day)'	DEFAULT_GENERATED
5	None	

distributor_order_line

	Field	Type	Null	Key	Default	Extra
0	dist_line_id	b'int'	NO	PRI	None	auto_increment
1	order_id	b'int'	YES	MUL	None	
2	book_id	b'int'	YES	MUL	None	
3	quantity	b'int'	YES		b'10'	
4	price	b'double'	YES		None	

distributor_paymet_details

	Field	Type	Null	Key	Default	Extra
0	payment_id	b'int'	NO	PRI	None	auto_increment
1	payment_type	b'varchar(200)'	YES		None	
2	price	b'double'	YES		None	
3	payment_status	b'varchar(200)'	YES		None	
4	order_id	b'int'	YES	MUL	None	
5	status_Id	b'int'	YES	MUL	None	

publisher

	Field	Type	Null	Key	Default	Extra
0	publisher_id	b'int'	NO	PRI	None	auto_increment
1	publisher_name	b'varchar(400)'	NO		None	

shipper

	Field	Type	Null	Key	Default	Extra
0	shipper_Id	b'int'	NO	PRI	None	auto_increment
1	shipper_name	b'varchar(400)'	YES		None	
2	phone_number	b'varchar(12)'	YES		None	

status

	Field	Type	Null	Key	Default	Extra
0	status_Id	b'int'	NO	PRI	None	auto_increment
1	status	b'varchar(400)'	YES		None	

store

	Field	Type	Null	Key	Default	Extra
0	store_id	b'int'	NO	PRI	None	auto_increment
1	store_name	b'varchar(400)'	NO		None	
2	Type	b'varchar(100)'	YES		None	
3	phone	b'varchar(12)'	YES		None	
4	email	b'varchar(200)'	YES		None	
5	street	b'varchar(200)'	YES		None	
6	city	b'varchar(200)'	YES		None	
7	state	b'varchar(200)'	YES		None	
8	zip_code	b'int'	YES		None	

warehouse

	Field	Type	Null	Key	Default	Extra
0	store_id	b'int'	NO	PRI	None	
1	book_id	b'int'	NO	PRI	None	
2	available_quantity	b'int'	YES		None	

**Fetching Record from Warehouse Table

In [56]:

```
try:
    cursor = myconn.cursor()

    sql_select_Query = "select * from Warehouse WHERE book_id = 1 and store_id = 4"

    cursor.execute(sql_select_Query)
    # get all records
    records = cursor.fetchall()
    print("Total number of rows in Warehouse: ", cursor.rowcount)
    print("*" * 25)
    print("\nPrinting each row")
    for row in records:
        print("Store_Id = ", row[0], )
        print("Book_Id = ", row[1])
        print("Available_Quantity = ", row[2] , "\n")

except mysql.connector.Error as e:
    print("Error reading data from MySQL table", e)
```

Total number of rows in Warehouse: 1

```
Printing each row
Store_Id = 4
Book_Id = 1
Available_Quantity = 8
```

**Calculating Price for a Book by its Id & Quantity

```
In [70]: sql_select_Query = "select calculate_order_price(17,2)"
cursor.execute(sql_select_Query)
amount = cursor.fetchall()
print("Calculated Order Amount = {}".format(amount))
```

Calculated Order Amount = [(240.0,)]

**before_is_available Trigger

***Condition 1 - Invalid Quantity

```
In [72]: try:
    mySql_insert_query = """INSERT INTO Customer_order_line (order_id, book_id, quantity)
VALUES (%s, %s, %s, calculate_order_price(%s, %s))"""
    records_to_insert = [(257, 1, -2)]
    cursor.executemany(mySql_insert_query, records_to_insert)
    # myconn.commit()
    print(cursor.rowcount, "Record inserted successfully into Customer_order_line table")

except mysql.connector.Error as error:
    print(" Failed to insert record into MySQL table : {}".format(error))
```

Failed to insert record into MySQL table : 1644 (50001): PLEASE ENTER A VALID BOOK QUANTITY

***Condition 2 - Ord_Quantity > Available Quantity

***Get Book Availability details

```
In [83]: sql_select_Query = "select * from Warehouse WHERE book_id = 1 and store_id = 4"
cursor.execute(sql_select_Query)
amount = cursor.fetchall()
#print("Available Book Quantity = {}".format(amount))
print("Available Book Quantity :")
print("Store_ID | Book_ID | Available_Quantity")
print("-"*25)
for row in amount:
    print(" {} \t | {} \t | \t{} \t".format(row[0],row[1],row[2]))
```

Available Book Quantity :

Store_ID | Book_ID | Available_Quantity

Store_ID	Book_ID	Available_Quantity
4	1	8

In [84]:

```
try:
    mySql_insert_query = """INSERT INTO Customer_order_line (order_id, book_id, quantity)
VALUES (%s, %s, %s, calculate_order_price(%s, %s))"""
    records_to_insert = [(257, 1, 2)]
    cursor.executemany(mySql_insert_query, records_to_insert)
    # myconn.commit()
    print(cursor.rowcount, "Record inserted successfully into Customer_order_line table")
```

```

records_to_insert = [(257,1,12)]

cursor.executemany(mySql_insert_query, records_to_insert)
# myconn.commit()
print(cursor.rowcount, "Record inserted successfully into Customer_order_line table"

except mysql.connector.Error as error:
    print(" Failed to insert record into MySQL table : {}".format(error))

```

Failed to insert record into MySQL table : 1644 (50002): NOT AVAILABLE - ORDER QUANTITY EXCEEDS AVAILABLE QUANTITY - AVAILABLE_BOOK_QTY = 8

***Condition 3 - Ord_Quantity > Available Quantity

In [85]:

```

try:
    mySql_insert_query = """INSERT INTO Customer_order_line (order_id, book_id, quantity)
                           VALUES (%s, %s, %s, calculate_order_p"""

    records_to_insert = [(257,1,2)]

    cursor.executemany(mySql_insert_query, records_to_insert)
    # myconn.commit()
    print(cursor.rowcount, "Record inserted successfully into Customer_order_line table"

except mysql.connector.Error as error:
    print(" Failed to insert record into MySQL table : {}".format(error))

```

1 Record inserted successfully into Customer_order_line table

In [87]:

```
myconn.commit()
```

In [99]:

```

cursor = myconn.cursor();
sql_select_Query = "select * from Warehouse WHERE book_id = 1 and store_id = 4;"
cursor.execute(sql_select_Query)
amount = cursor.fetchall()
#print("Available Book Quantity = {}".format(amount))
print("Available Book Quantity :")
print("Store_ID | Book_ID | Available_Quantity")
print("-"*25)
for row in amount:
    print(" {} \t | {} \t | \t{}".format(row[0],row[1],row[2]))

```

Available Book Quantity :
Store_ID | Book_ID | Available_Quantity

Store_ID	Book_ID	Available_Quantity
4	1	6

***Write PYTHON codes that connects to this database and use SQL commands to select and retrieve information about availability of books identified by title, author, publisher or year of publication

In [101...]

```

sql_select_Query = """SELECT B.BOOK_ID,B.TITLE,B.publication_date,A.author_NAME, P.publisher_NAME
                     INNER JOIN Book_Author BA ON B.BOOK_ID = BA.BOOK_ID
                     INNER JOIN AUTHOR A ON A.author_id = BA.author_id

```

```

INNER JOIN Warehouse W ON W.BOOK_ID = B.BOOK_ID
INNER JOIN STORE S ON S.STORE_ID = W.STORE_ID
WHERE B.BOOK_ID IN (1,2,3,4,5,6,7,8,9,10);"""

cursor.execute(sql_select_Query)
cursor.fetchall()

```

```

Out[101...]
[(1,
 "The World's First Love: Mary Mother of God",
 datetime.date(1996, 9, 1),
 'Fulton J. Sheen',
 'Ignatius Press',
 'Distributor 1',
 40),
(1,
 "The World's First Love: Mary Mother of God",
 datetime.date(1996, 9, 1),
 'Fulton J. Sheen',
 'Ignatius Press',
 'Distributor 4',
 6),
(2,
 'The Illuminati',
 datetime.date(2004, 10, 4),
 'Larry Burkett',
 'Thomas Nelson',
 'Distributor 1',
 40),
(2,
 'The Illuminati',
 datetime.date(2004, 10, 4),
 'Larry Burkett',
 'Thomas Nelson',
 'Distributor 4',
 32),
(3,
 'The Servant Leader',
 datetime.date(2003, 3, 11),
 'Kenneth H. Blanchard',
 'Thomas Nelson',
 'Distributor 1',
 40),
(3,
 'The Servant Leader',
 datetime.date(2003, 3, 11),
 'Kenneth H. Blanchard',
 'Thomas Nelson',
 'Distributor 5',
 32),
(4,
 'What Life Was Like in the Jewel in the Crown: British India AD 1600-1905',
 datetime.date(1999, 9, 1),
 'Time-Life Books',
 'Time Life Medical',
 'Distributor 1',
 40),
(4,
 'What Life Was Like in the Jewel in the Crown: British India AD 1600-1905',
 datetime.date(1999, 9, 1),
 'Time-Life Books',

```

```
'Time Life Medical',
'Distributor 5',
32),
(5,
"Cliffs Notes on Aristophanes' Lysistrata The Birds The Clouds The Frogs",
datetime.date(1983, 12, 29),
'W. John Campbell',
'Cliffs Notes',
'Distributor 1',
40),
(5,
"Cliffs Notes on Aristophanes' Lysistrata The Birds The Clouds The Frogs",
datetime.date(1983, 12, 29),
'W. John Campbell',
'Cliffs Notes',
'Distributor 6',
32),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Volume II",
datetime.date(2000, 4, 1),
'Eric Bentley',
'Applause Theatre & Cinema Book Publishers',
'Distributor 2',
40),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Volume II",
datetime.date(2000, 4, 1),
'Lope de Vega',
'Applause Theatre & Cinema Book Publishers',
'Distributor 2',
40),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Volume II",
datetime.date(2000, 4, 1),
'Miguel de Cervantes Saavedra',
'Applause Theatre & Cinema Book Publishers',
'Distributor 2',
40),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Volume II",
datetime.date(2000, 4, 1),
'Pedro Calderón de la Barca',
'Applause Theatre & Cinema Book Publishers',
'Distributor 2',
40),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Volume II",
datetime.date(2000, 4, 1),
'Roy Campbell',
'Applause Theatre & Cinema Book Publishers',
'Distributor 2',
40),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Volume II",
```

```
datetime.date(2000, 4, 1),
'Tirso de Molina',
'Applause Theatre & Cinema Book Publishers',
'Distributor 2',
40),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Vol
ume II",
datetime.date(2000, 4, 1),
'Eric Bentley',
'Applause Theatre & Cinema Book Publishers',
'Distributor 6',
32),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Vol
ume II",
datetime.date(2000, 4, 1),
'Lope de Vega',
'Applause Theatre & Cinema Book Publishers',
'Distributor 6',
32),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Vol
ume II",
datetime.date(2000, 4, 1),
'Miguel de Cervantes Saavedra',
'Applause Theatre & Cinema Book Publishers',
'Distributor 6',
32),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Vol
ume II",
datetime.date(2000, 4, 1),
'Pedro Calderón de la Barca',
'Applause Theatre & Cinema Book Publishers',
'Distributor 6',
32),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Vol
ume II",
datetime.date(2000, 4, 1),
'Roy Campbell',
'Applause Theatre & Cinema Book Publishers',
'Distributor 6',
32),
(6,
"Life Is a Dream and Other Spanish Classics (Eric Bentley's Dramatic Repertoire) - Vol
ume II",
datetime.date(2000, 4, 1),
'Tirso de Molina',
'Applause Theatre & Cinema Book Publishers',
'Distributor 6',
32),
(7,
'William Goldman: Four Screenplays',
datetime.date(2000, 5, 1),
'William Goldman',
'Applause Books',
'Distributor 2',
40),
```

```
(7,
    'William Goldman: Four Screenplays',
    datetime.date(2000, 5, 1),
    'William Goldman',
    'Applause Books',
    'Distributor 7',
    32),
(8,
    'The Season: A Candid Look at Broadway',
    datetime.date(2004, 7, 1),
    'William Goldman',
    'Limelight',
    'Distributor 2',
    40),
(8,
    'The Season: A Candid Look at Broadway',
    datetime.date(2004, 7, 1),
    'William Goldman',
    'Limelight',
    'Distributor 7',
    32),
(9,
    'The Beatles Complete - Updated Edition',
    datetime.date(1986, 12, 1),
    'The Beatles',
    'Hal Leonard Publishing Corporation',
    'Distributor 2',
    40),
(9,
    'The Beatles Complete - Updated Edition',
    datetime.date(1986, 12, 1),
    'The Beatles',
    'Hal Leonard Publishing Corporation',
    'Distributor 8',
    32),
(10,
    'Working Effectively with Legacy Code',
    datetime.date(2004, 9, 1),
    'Michael C. Feathers',
    'Prentice Hall',
    'Distributor 2',
    40),
(10,
    'Working Effectively with Legacy Code',
    datetime.date(2004, 9, 1),
    'Michael C. Feathers',
    'Prentice Hall',
    'Distributor 8',
    32])
```

In [102...]

```
my_result_01 = pd.read_sql_query(sql_select_Query,myconn)
my_result_01
```

Out[102...]

	BOOK_ID	TITLE	publication_date	author_NAME	publisher_name	store_name	available_quan
0	1	The World's First Love: Mary Mother of God	1996-09-01	Fulton J. Sheen	Ignatius Press	Distributor 1	1

BOOK_ID	TITLE	publication_date	author_NAME	publisher_name	store_name	available_quan
1	1 The World's First Love: Mary Mother of God	1996-09-01	Fulton J. Sheen	Ignatius Press	Distributor 4	
2	2 The Illuminati	2004-10-04	Larry Burkett	Thomas Nelson	Distributor 1	
3	2 The Illuminati	2004-10-04	Larry Burkett	Thomas Nelson	Distributor 4	
4	3 The Servant Leader	2003-03-11	Kenneth H. Blanchard	Thomas Nelson	Distributor 1	
5	3 The Servant Leader	2003-03-11	Kenneth H. Blanchard	Thomas Nelson	Distributor 5	
6	4 What Life Was Like in the Jewel in the Crown: ...	1999-09-01	Time-Life Books	Time Life Medical	Distributor 1	
7	4 What Life Was Like in the Jewel in the Crown: ...	1999-09-01	Time-Life Books	Time Life Medical	Distributor 5	
8	5 Cliffs Notes on Aristophanes' Lysistrata The ...	1983-12-29	W. John Campbell	Cliffs Notes	Distributor 1	
9	5 Cliffs Notes on Aristophanes' Lysistrata The ...	1983-12-29	W. John Campbell	Cliffs Notes	Distributor 6	
10	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Eric Bentley	Applause Theatre & Cinema Book Publishers	Distributor 2	
11	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Lope de Vega	Applause Theatre & Cinema Book Publishers	Distributor 2	
12	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Miguel de Cervantes Saavedra	Applause Theatre & Cinema Book Publishers	Distributor 2	
13	6 Life Is a Dream and Other	2000-04-01	Pedro Calderón de la Barca	Applause Theatre & Cinema Book Publishers	Distributor 2	

BOOK_ID	TITLE	publication_date	author_NAME	publisher_name	store_name	available_quan
	Spanish Classics (Er...					
14	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Roy Campbell	Applause Theatre & Cinema Book Publishers	Distributor	2
15	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Tirso de Molina	Applause Theatre & Cinema Book Publishers	Distributor	2
16	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Eric Bentley	Applause Theatre & Cinema Book Publishers	Distributor	6
17	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Lope de Vega	Applause Theatre & Cinema Book Publishers	Distributor	6
18	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Miguel de Cervantes Saavedra	Applause Theatre & Cinema Book Publishers	Distributor	6
19	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Pedro Calderón de la Barca	Applause Theatre & Cinema Book Publishers	Distributor	6
20	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Roy Campbell	Applause Theatre & Cinema Book Publishers	Distributor	6
21	6 Life Is a Dream and Other Spanish Classics (Er...	2000-04-01	Tirso de Molina	Applause Theatre & Cinema Book Publishers	Distributor	6
22	7 William Goldman: Four Screenplays	2000-05-01	William Goldman	Applause Books	Distributor	2
23	7 William Goldman: Four Screenplays	2000-05-01	William Goldman	Applause Books	Distributor	7

BOOK_ID	TITLE	publication_date	author_NAME	publisher_name	store_name	available_quan
24	8	The Season: A Candid Look at Broadway	2004-07-01	William Goldman	Limelight	Distributor 2
25	8	The Season: A Candid Look at Broadway	2004-07-01	William Goldman	Limelight	Distributor 7
26	9	The Beatles Complete - Updated Edition	1986-12-01	The Beatles	Hal Leonard Publishing Corporation	Distributor 2
27	9	The Beatles Complete - Updated Edition	1986-12-01	The Beatles	Hal Leonard Publishing Corporation	Distributor 8
28	10	Working Effectively with Legacy Code	2004-09-01	Michael C. Feathers	Prentice Hall	Distributor 2
29	10	Working Effectively with Legacy Code	2004-09-01	Michael C. Feathers	Prentice Hall	Distributor 8

In [103]:

```
if myconn.is_connected():
    cursor.close()
    myconn.close()
    print("MySQL connection is closed")
```

MySQL connection is closed

In []: